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STUDIES OF VIKING AGE SWORDS: METALLOGRAPHY AND ARCHAEOLOGY

ESTUDIOS SOBRE ESPADAS DE ÉPOCA VIKINGA: METALOGRAFÍAS Y ARQUEOLOGÍA

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ABSTRACT - RESUMEN

The paper is a comment on Alan Williams investigation 'A Metallurgical Study of some Viking Swords' published in *Gladius* XXIX. Williams' paper comprise metallurgical investigations of 44 Viking Age Swords, all with ULFBERHT inscriptions. Such investigations, made by a well qualified metallurgist, are essential to archaeology. Unfortunately, this one has some serious limitations. In order to give a good description of the quality of a sword-blade, samples showing at least the section through both the edge and the central part of the blade are necessary. This is mostly not the case in Williams' investigations, and he gives insufficient information about his samples. Other weak points are his group division and his interpretation of the production area for blades containing high-carbon steel.

Este trabajo es un comentario sobre la investigación de Alan Williams 'A Metallurgical Study of some Viking Swords` publicado en *Gladius* XXIX. El artículo de Williams incluye un estudio arqueometalúrgico de 44 espadas de época vikinga, todas ellas con la inscripción ULFBERHT. Estas investigaciones, realizadas por un arqueometalúrgico altamente cualificado, son esenciales en arqueología. Sin embargo, esta en concreto presenta algunas serias limitaciones. Para poder proporcionar una buena descripción de la calidad de la hoja de una espada, son necesarias muestras de al menos la sección desde el filo y hasta la parte central de la hoja. Este no es el caso de la mayoría de las muestras de Williams, quien proporciona insuficiente información sobre su toma de muestras. Otros puntos débiles son su clasificación en grupos y su interpretación del área de producción para las hojas que contienen un acero con elevado contenido de carbono.

KEYWORDS - PALABRAS CLAVE

Viking Age sword-blades; Metallography; Archaeological context.

Hojas de espada de época vikinga; Metalografía; Contexto arqueológico.

ULFBERHT and other inscriptions on sword blades are marks of good quality blades. This statement has been repeated over and over again until it has become a truth. The problem, however, is that hardly any systematic investigations of these blades have been carried out, and our knowledge of the constructions and qualities of ULFBERHT blades is very poor. This is only one out of many problems concerning the production and distribution of these blades.

Alan Williams' investigation of 44 ULFBERHT swords, including a few earlier investigations is indeed of great interest. We hoped for basic new information about their construction and quality. We are, however, left with some serious questions concerning his investigation

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methods and what can really be learnt from the analyses, even though they are carried out by a highly qualified metallurgist.

Our first question refers to his selection of swords for analyses which he does not account for. He has analysed swords found in several European countries, the majority in Norway, Finland, Estonia and Latvia, but very few from the central parts of Europe where the smithies for ULFBERHT blades are supposed to be situated. Only for a few blades he gives hilt-type references. For the rest, the reader has to find that out from the pictures, which in several cases are not good enough for a type determination. As ULFBERHT swords cover a period of more than 200 years, hilt-types are important, as changes in blade construction during this period have taken place. Which blade-constructions take over from pattern-welding in the Viking Age?

Our second objection is more serious. How were his samples taken? The normal procedure in metallographic investigations of edged weapons and tools is to analyse the full, alternatively the half section of the blade. For swords this includes both the edges and the central part of the blade, and discerns differences in materials between these parts and how they were welded together. It is also a usual procedure to mark on a picture where the section was taken.

Williams has not used these procedures. The sections in his investigation obviously cover only a small part of the blade, mostly the edges. The most accurate - and acceptable - informations are: «The microstructure taken from a half-section at the broken end» (A2) or: «A sample was taken from the edge at the broken end of the sword» (A3). «A specimen from the body of the sword» (A4) is not very accurate, and seems not to be part of a continuous blade section. About 1/3 of the analyses lack information on where the samples were taken, but from his conclusions they were most probably taken from the edges.

A third weak point has to be mentioned. In several cases he has mixed up the pictures of the investigated swords. Fig.24 is not the sword A7 from Hamburg which is probably the one depicted in Fig.26. Fig 49 is not the sword B3 from the Bergen collection. B 1165 is an H-type sword which has only the lower guard preserved (Lorange 1889: Pl.II,2). C 14, also from the Bergen collection, B 1162, a B/C-type sword (Lorange 1889: Pl.IV, 1), is probably not the sword depicted in Fig.98, which looks like a V-type sword with inlay decoration on the hilts. These examples were easy for us to control. There may be more such mistakes in depictions of swords from other collections. Can we trust that Williams is more accurate in the presentation of his analyses? Probably yes, but we cannot help that a doubt steals in on this point.

The swords were divided into four groups, according to the spelling of their maker's name (p. 124). Groups A and B have fully readable spellings +ULFBERH+T and +ULFBERHT+, respectively. Groups C and D have variant spellings, and are grouped after the materials used, C: steel swords and D: iron swords.

At first sight spellings look as a practical means of division, and the groups A and B correspond to Stalsberg's spellings 1 and 2, the two most numerous ones on known swords (Stalsberg 2008: Tab. 1). Both C and D have variant spellings, but they are separated by a different principle, and this means that two different principles are used in a division into four groups. This is unfortunate.

Everyone who has studied ULFBERHT-swords or the literature on them, is familiar with the problems in interpreting the spellings correctly, and many inscriptions are fragmentary. This is illustrated by a comparison between Williams' and Stalsberg's readings. In most cases the readings of the A and B group swords correspond, but Stalsberg places the sword A6 (her N9), in her variant 6 which covers several variant spellings. Williams' swords D1, D6 and D11 are found in Stalsberg's variant 1 (FIN1, N6, Est7). We cannot say what is correct, but these discrepances illustrate the problems in Williams' group division.

Williams' result that crucible steels are used in 9 or 10 of his group A swords is very interesting. His conclusion, that these swords were probably made in the Baltic area, is untenable.

There is a general agreement in archaeology that the genuine ULFBERHT blades are made in Christian environments familiar with the use of the Latin alphabet. This excludes the Baltic area which was not Christianed until ULFBERHT swords were no longer produced. The rest of his conclusions need a more thorough discussion.

So what are the positive results of Williams' investigations? They have demonstrated on an unusually large number of metallographic analyses that ULFBERHT blades are made of very different materials and vary greatly in quality. These results cannot for the time being be used in solving questions concerning their production and distribution, or the problem of genuine ULFBERHT swords versus imitations. Probably his work will make a valuable contribution to future research when more analyses are available, in spite of the fact that his samples in most cases cover only the edges, making comparisons with other investigations of full- or half- sections of the blades difficult.

Metallographic investigations make very important contributions to archaeological research, which in fact is the goal of such investigations. They are indispensable in solving many of the very complicated problems attached to both ULFBERHT and other Viking Age swords and edged weapons. One basic condition in future work should be a close cooperation between archaeologists and metallurgists, starting at an initial stage, i.e. in approaching the special problems to be investigated. In sample selection, in source criticism and discussions during the process, ending in interpretations and discussions of results in a wide cultural context. This is equally important for both parts.

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